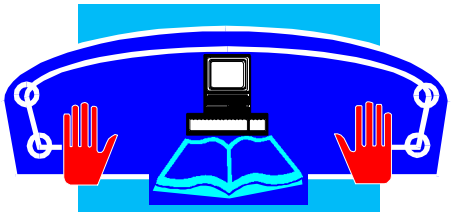



# *General Overview Of The Northern Shrimp Fishery*
# *Date of Report: 1987*
# *Catalogue Number: 3-2-3*

Introduction

During the early 1970's, a number of exploratory/experimental cruises established that shrimp stocks existed off Northern Newfoundland and Labrador. Results of fishing explorations in 1975 indicated that these stocks had potential for commercial exploitation.

In 1977, the Industrial Development Branch of the Department of Fisheries and Environment in conjunction with Fishery Products Ltd. of St. John's undertook a project to determine the feasibility of a commercial shrimp fishery in preselected areas off Labrador. The results were very encouraging. Between July 7, 1977 and November 28, 1977, four vessels, M.V. "Zermatt" and M.V. "Zaragoza" of Canadian Registry and M.V. "Koralen" and M.V. "Pero" of Norwegian Registry landed in excess of 2,400 tonnes of shrimp in a total of 19 trips or 299 fishing days[1] for an average catch of 8 tonnes for each fishing day.

Catch rates were found to be low in Hawke Channel (low concentration of shrimp) and relatively high in the Cartwright and Hopedale Channels. As a result, during the pilot project, fishing effort was concentrated in the Cartwright and Hopedale Channels. Early fishing effort was focused in the Cartwright Channel but shifted to the Hopedale Channel around the middle of September due to a drop in catch per unit-of-effort in the Cartwright Channel. Table 1 shows the amount of fishing time exerted in the three channels by the four vessels in 1977.

[1] Industrial Development Branch, Offshore Shrimp Explorations. Newfoundland Region, 1977.

TABLE 1

AMOUNT OF FISHING TIME EXERTED IN EACH AREA BY FOUR VESSELS IN 1977

| Area | Days | Hrs. |
|---|---|---|
| Cartwright Channel | 135 | 1,954 |
| Hopedale Channel | 161 | 1,846 |
| Hawke Channel | 3 | 20 |

As a result of the positive feedback from the 1977 experimental fishing effort, steps were taken to initiate a commercial shrimp fishery off the Labrador Coast in 1978.

By February 1978, approximately 50 applications for licences to fish the newly discovered shrimp stocks had been received by the Department of Fisheries and Oceans from fishermen, fish processing and fish companies in Newfoundland, the Maritimes and Quebec. Approximately 40% of the applications came from Newfoundland. Another 40% came from the Maritimes and most of the remainder were from Quebec.

On May 31, 1978, the Minister announced that a total of eleven licences would be available for Newfoundland, Maritimes and Quebec fishermen wishing to participate in the new shrimp fishery during the 1978 fishing season. Five of the licences were allotted to Newfoundland, four to the Maritimes and two to Quebec. Three of the Newfoundland licences were to be held in reserve for Labrador fishermen.

The number of licences available was limited to eleven in order to (1) Prevent the development of excessive harvesting capacity, (2) to provide more time for stock assessments, and (3) given the recommended Total Allowable Catch (TAC), to provide enough fish to make the fishery a viable operation. for each licence holder.

In 1979 from August to October an exploratory/experimental fishing survey in the Eastern Hudson Strait/Ungava Bay area revealed concentrations of a closely related shrimp species west of Resolution Island and off Port Burwell. These two relatively small areas of concentration produced good catch rates, some exceeding 1000 kg. per hour[1].

Resource Characteristics

There are two species of commercially valuable pandlid shrimp found in Canadian Northwest Atlantic waters, Pandalus borealis and Pandalus montagui. Often P. borealis is referred to as the northern (pink) shrimp and P. montagui as the striped or striped pink shrimp. The former generally prefer muddy substrate and are located in greatest concentrations at depths of 200-600 metres with corresponding water temperatures of 2-4°C. The latter prefer colder (usually shallower) water (< 3°C) in the Eastern Hudson Strait/Ungava Bay area and are found in concentrations at depths of 175-300 metres. This species is also found on muddy and sometimes rocky substrate associated with the shallower depths.

It appears as a general rule, that P. borealis in Subareas 0 and 1 attain larger sizes than the shrimp found in the channels off Labrador. The life span of this species is usually longer in colder water. The warmer the water, the faster the growth and maturity rate of shrimp. The sizes of shrimp in

[1] C.G. Parsons et al., Estimates of Potential Yield for Shrimp (Pandalus montagui in the Eastern Hudson Strait and Ungava Bay. CAFSAC Res. Doc. 81/6.

the channels off Labrador are similar, although in Hawke Channel the maximum size observed is slightly smaller than in the other two areas.

In addition to the shrimp stocks in the Hawke, Cartwright and Hopedale Channels, lesser concentrations of P. borealis are found in Division 3K off Northeastern Newfoundland and Division 2G off Northern Labrador. Another P. borealis stock in Subareas 0 and 1 between Baffin Island and Greenland has been fished by a number of European countries since the early 1970's.[1]

While relationships between shrimp concentrations in different areas may exist, the fishing grounds are relatively well separated. The location of fishing grounds for both species are identified in map 1 on the' following page.

The Canadian Northern Shrimp fishery is of very recent origin, and, has been only prosecuted over a four to five year time frame. In this period, there have been many changes and developments with respect to the management and harvesting of the resource. To permit a better understanding of these developments, they have been dealt with on a year-by-year basis.

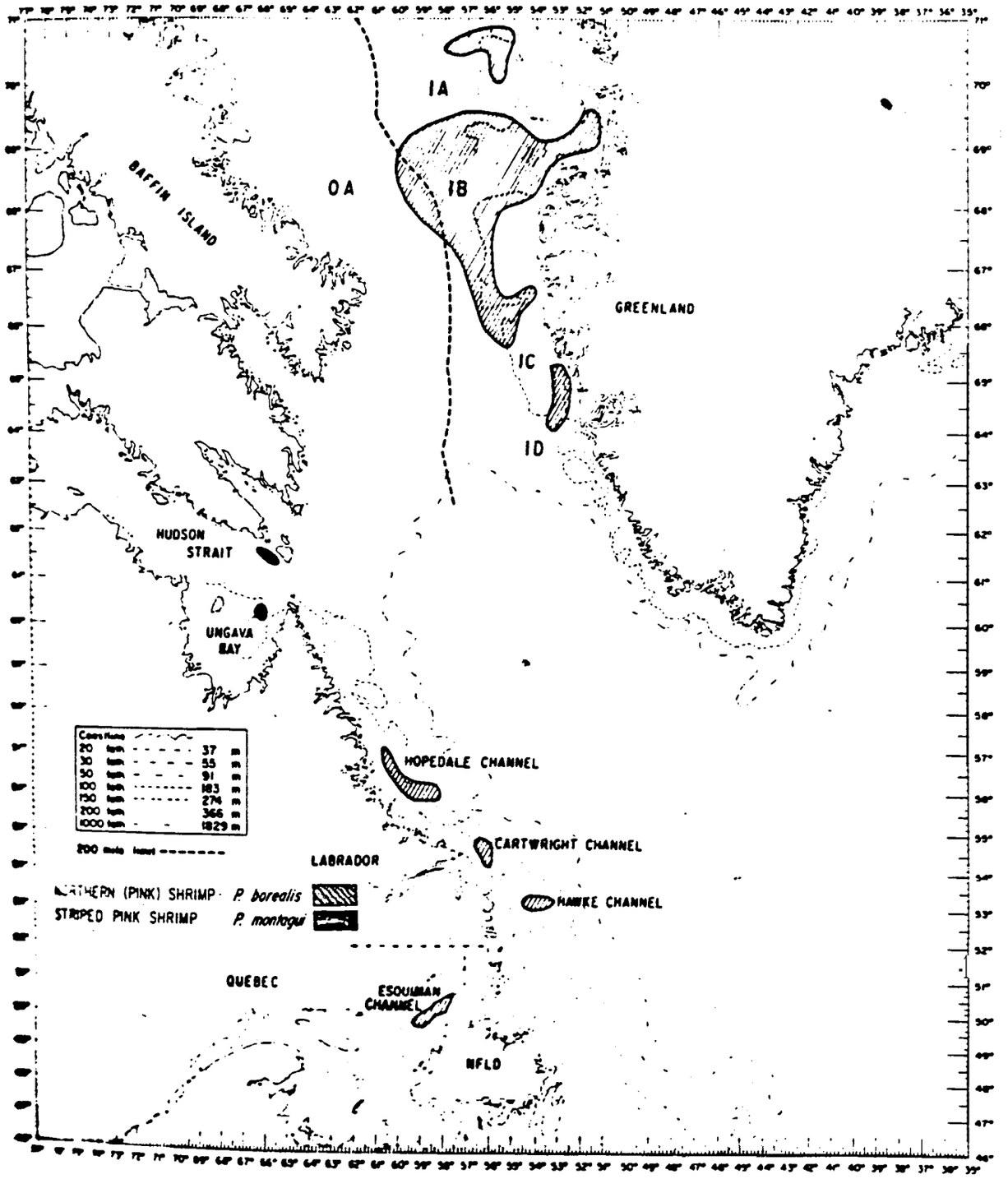
## The Northern Shrimp Fishery in 1978

Seven of the total eleven licences made available were operative in the fishery during 1978[2]. Four foreign shrimpers were chartered and three

[1] NAFO, Scientific Council Reports. 1979-81.

[2] Problems in issuing of licences and difficulties in acquiring/chartering vessels prevented the other four licences from being used during 1978.

MAP 1


0A
1A
1B
1C
1D
BAFFIN ISLAND
GREENLAND
HUDSON STRAIT
UNGAVA BAY
HOPEDALE CHANNEL
CARTWRIGHT CHANNEL
HAWKE CHANNEL
LABRADOR
QUEBEC
ESQUIMAN CHANNEL
NFLD
NORTHERN (PINK) SHRIMP P. borealis
STRIPED PINK SHRIMP P. montagui
37 m
55 m
91 m
183 m
274 m
366 m
1829 m

domestic vessels were used (two freezer trawlers and one wetfish trawler).

The seven licences/vessels active in the fishery in 1978 harvested approximately 3,260 tonnes of shrimp from the Cartwright and Hopedale Channels. Table 2 shows that 1,413 tonnes (43%) of the shrimp harvested came from the Cartwright Channel. The remainder (1,847 tonnes or 57%) came from the Hopedale Channel.

Catch rates varied substantially between months in both the Cartwright and Hopedale Channels. In the Hopedale Channel, for example, the shrimp catch per hour fished dropped from 773 kg. in July to 325 kg. in September and increased again to 846 kg. in December. The average catch per hour fished for all months was 546 kg. in the Hopedale Channel and 435 kg. for the Cartwright Channel. During 1978, there were no significant shrimp harvests in the other stock areas (Table 2). This was primarily due to low effort and catch rates in those areas.

TABLE 2

NORTHERN SHRIMP TAC'S AND CATCHES' IN TONNES, 1978-81

| STOCK AREA | 1978 TAC | 1978 CATCH | 1979 TAC | 1979 CATCH | 1980 TAC | 1980 CATCH | 1981 TAC | 1981 CATCH |
|---|---|---|---|---|---|---|---|---|
| Hawke Channel | 800 | * | 1700 | * | 850 | * | 850 | 132 |
| Cartwright Channel | 800 | 1413 | 800 | 1122 | 800 | 155 | 800 | * |
| Hopedale Channel | 4500 | 1847 | 3200 | 3013 | 4000 | 3928 | 4000 | 3394 |
| 23 | 500 | * | 500 | * | 500 | * | 500 | * |
| 3K | 500 | * | 500 | * | 500 | * | 500 | * |
| Other | 1000 | * | 2000 | 1732 | 2500 | 2726 | 5000 | 4331 |
| | 8100 | 3260 | 8700 | 5867 | 9150 | 6809 | 11650 | 7857 |

* No significant commercial harvest.

' Catch data in this table refers to landings, discards are not included.

Note: Footnotes related to Table 2 continued on the following page.

In 1978 the 1000 tonne allocation for 0+1 was not further subdivided for the Canadian Zone (Subarea 0) or the EEC Zone (Subarea 1).

In 1979 the allocation was divided into 250 tonnes (Canadian Zone) and 1,750 tonnes (EEC Zone).

In 1980 the allocation was divided into 500 tonnes (Canadian Zone) and 2,000 tonnes (EEC Zone).

In 1981 due to difficulties in negotiations with the EEC the 5,000 tonne TAC was for Subarea 0 (Canadian Zone) only.

) Catch figures for 1981 are preliminary.

Data in Table 2 above was obtained from (1) D.G. Parsons et al., Review of Abundance Indices and Stock Assessments (Pandalus borealis) in the Labrador Channels. CAFSAC Res. Dec. 81/7, (2) NAFO, Scientific Council Reports. 1979-81, (3) Canadian Atlantic Quota Reports, Statistics and 'r Services Division, Economic Services Branch, Fisheries and Oceans, Newfoundland Region.

The Northern Shrimp Fishery in 1979

All eleven Northern Shrimp licences mentioned by the Minister in his May 31, 1978 press release were operative in 1979. In addition, a twelfth licence was issued to the Makivik Corporation representing the Inuit of Northeastern Quebec. The 1 icence, however, restricted the vessel to fishing Subareas 0 and 1 only. A complete listing of licences (by Region) as originally issued is providedin Table 3 including an up-to-date record of any company and/or group name changes. (See following page. )

As a condition of the licences, the licencees were required to land and process at least 50% of their catch on shore. Operators of chartered vessels were to ensure that 25% of crew members were Canadian. Finally, by September 1, 1979, each licencee who operated a boat in the Northern Shrimp fishery in 1978 was supposed to have purchased a vessel. Those companies or organizations which did not operate licences in 1978 were to be permitted to charter vessels for 1979, but by September 1, 1980 they were to purchase

vessels also. The Makivik Corporation however, upon receiving their licence in July 1979, was not permitted to charter on a royalty basis but was expected to have their own vessel by February, 1980. This date was later extended to September, 1980 by which time they had purchased a vessel. A further stipulation of their licence was that the product produced under charter was to be marketed as a Product of Canada.

TABLE 3

COMPANIES/ORGANIZATIONS THAT RECEIVED NORTHERN SHRIMP LICENCES BY REGION AND YEAR OF ISSUE

| Company/Organization | Region* | No. of Licences | Year of Issue |
|---|---|---|---|
| Fishery Products Ltd. | Nfld. | 2 | 1978 |
| Labrador Fisheries Emergency Policy Committee (1) | Nfld. | 1 | 1979 |
| Nfld. Fishermen's Union Producers Co-op Society (2) | Nfld. | 2 | 1979 |
| United Maritime Fishermen (3) | Maritimes | 1 | 1978 |
| Lareque Co-operative Ltd. (4) | Maritimes | 1 | 1978 |
| Caraquet Ltd. (4) | Maritimes | 1 | 1978 |
| Richerton Industries Ltd. (5) | Maritimes | 1 | 1978 |
| Eastern Quebec Seafoods Ltd. (6) | Quebec | 1 | 1978 |
| C. Que. United Fishermen (6) | Quebec | 1 | 1978 |
| Makivik Corporation (7) | Quebec | 1 | 1979 |
| | TOTAL | 12 | |

* Recently the Department of Fisheries and Oceans has undergone certain administrative changes with the creation of a new Gulf Region. Individual changes, where applicable, are recorded below identifying the location of each licence as of March 1, 1982.

(1) This licence issued c/o Labrador Fisheries Emergency Policy Committee in 1979 is now administered under the name of Torngat Fish producers Co-operative Society Ltd.

Note: Footnotes related to Table 3 continued on the following page.

In 1979, each licence holder was allocated an initial licence quota of 600 tonnes from the total 6,700 tonne TAC for the Cartwright, Hawke and Hopedale Channel and Divisions 2G and 3K. The uncaught balance of the TAC was to be reallocated by October 1, 1979. The Makivik Corporation was given a 600 tonne vessel quota from the 2,000 tonne Canadian allocation in Subareas 0 and 1. The remainder of the 0 + 1 allocation was to be fished on a first-come, first-served basis. This was the first year that vessel quotas came into effect for this fishery.

As in 1978, commercial shrimp fishing activity in the Hawke Channel and Division 2G and 3K was non-existent in 1979. However, effort was directed

towards the 0 + 1 stock resulting in a Canadian harvest a total allocation of 2,000 tonnes. Catch from the Can was 181 tonnes with 1,551 tonnes being caught in the EE (Table 2)

Fishing activity was again concentrated in the Cart Channels in 1979. The TAC for the Cartwright Channel wa with 1,122 tonnes being taken as against a TAC of $00 to 3,013 tonnes or 94% of the TAC of 3,200 tonnes was harves Channel. (Table 2)

The monthly variation in catch per unit-of-effort ex the Cartwright and Hopedale Channels in 1978 was evident in both Channels, the average catch per hour fished declir 25% respectively). The average catch per hour of fishing in Subareas 0 and 1 in 1979 was 396 kgs.[1]. This was down

It was in 1979, we recall from the introductory sectic the exploratory/experimental fishing survey discovered cone [illegible] in the Eastern Hudson Strait/Ungava Bay area. Pot estimated between 479 and 762 tonnes and 292 and 442 tonnes respectively. Catch rates in the area west of Resolution Is favourably with those of other shrimp fisheries

During 1979, many of the licencees found it difficult t [illegible] that 50% of the catch be processed on shore. As a resu" [illegible] was waived and most of the catch was processed aboard th

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[illegible] Scientific Council Reports. 1979-81.

[illegible] Parsons et al., Estimates of Potential Yield for Shrimp [illegible] in the Easter Hudson Strait and Ungava Bay. CAFS

vessel purchase deadline was also extended and the requirement that 25% of the crews of chartered vessels be Canadians was not met nor enforced. In 1979 one domestic operator requested, and was granted, permission to charter a foreign vessel to catch its Subareas 0 and 1 vessel quota. The rationale involved was based upon the domestic vessel having no on-board processing capability which was considered an essential feature of vessel operations for shrimp fishing in those zones.

The Northern Shrimp Fishery in 1980

In 1980, each licence holder was allocated 436 tonnes for the Cartwright and Hopedale Channels. The Makivik Corporation (Imaqpik Fisheries Inc.) in a separate allocation was granted 436 tonnes in Subareas 0 and 1. The remaining 2,064 tonnes in 0 + 1 and the TAC's in the Hawke Channel and Divisions 2G and 3Kwere to be fished on free-for-all basis. As noted previously (page 6) Canada was allocated 2,500 tonnes for Subareas 0 and 1 in 1980, 500 tonnes to be harvested on the Canadian side (Subarea 0) and 2,000 tonnes on the EEC side (Subarea 1 ) (Table 2). The fishery in Subarea 1 closed in mid-July, and, the fishery in Subarea 0 was closed to all vessels except the Makivik Corporation (Imaqpik Fisheries Inc.) at the same time. Later in the fall when it was determined that the 500 tonnes was not taken in Subarea 0, authorization was given to two charter vessels to take this remaining quantity. The actual quantity taken was very small.

Fishing effort in 1980 was again confined primarily to the Hopedale and Cartwright Channels and Subareas 0 and 1. Due to higher catch rates in the Hopedale Channel, effort in the Cartwright Channel was low relative to Previous years. Catches in the Hopedale Channel were good with 3,928 tonnes out of a TAC of 4,000 tonnes being taken. Only 155-tonnes (19%) of

the 800 tonne TAC for the Cartwright Channel was harvested. There was a marked increase in the quantities of shrimp taken in Subareas 0 and 1. The total Canadian harvest was 2,726 tonnes exceeding by 9% the Canadian allocation of 2,500 tonnes (Table 2).

The pattern in catch rates with significant variations on a monthly/seasonal basis experienced in 1978 and 1979 was again evident in 1980. . Although annual catch rates continued to show a decline from 1979 levels, the se... adjusted catch rates indicated relative stability in abundance in both areas. Estimates of biomass from research surveys in both years were similar, also reflecting some stabilization in abundance.[1] The catch per unit-of-effort increased in Subareas 0 and 1 in 1980,-and, it was thought that the decline observed from 1976-1979 had leveled off[2]. The catch by Greenland trawlers per hour fished was 396 kg. in 1979 and 496 kg. in 1980.

In response to the exploratory/experimental success in the Eastern Hudson Strait/Ungava Bay area, industry requested access to these areas in 1980 and accordingly three management zones were established. Two of these included the areas of concentration: one, just west of Resolution Island (Eastern Hudson Strait), and the other, off port Burwell in Ungava Bay, from which 100 tonnes of shrimp could be taken in each. The third management zone included grounds outside the former two from which an additional 100 tonnes could be taken. This was considered an experimental fishery and as such only permits were issued. Permits were issued to 3 licence holders in 1980 (Labrador

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[1] D. S. Parsons et al., Review of Abundance Indices and Stock Assessment for Shrimp (Pandalus borealis) in the Labrador Channels. CAFSAC Res. Doc. 81/7.

[2] Int. Scientific Council Reports. 1979-1981.

Fishermen's Union Shrimp Company Ltd., Lameque Co-Operative Ltd., and Ouebec United Fishermen) to fish a maximum of 50 tonnes each. The Quebec United Fishermen did not utilize their permit in 1980. Another licence holder, Imaqpik Fisheries Inc., also fished the Eastern Hudson Strait/ Ungava Bay area in that year under an experimental survey for the Department. Preliminary catch statistics indicated that the total catch from these areas in 1980 was approximately 236 tonnes most of which was taken just west of Resolution Island[1].

As a result of lower licence quotas in the more productive shrimp stock areas (Cartwright and Hopedale channels) in 1980, some of the licencees requested permission to use one boat to fish more than one licence. No decision was made on these requests in 1980. However, approval was subsequently given in 1981.

The pooling concept, originated from the Northern Shrimp Advisory Committee where industry representatives presented it as a solution to the lower licence quotas mentioned above. Pooling was permitted but under a 1.67 formula which was supported by a majority of Committee members and accepted by the Department. Essentially pooling means that, the holders of two individual licences can aggregate their vessel quotas, such that, with the use of a single vessel they can harvest 100% of one vessel quota and 67% of a second vessel quota. This formula was suggested because some participants felt that if certain licence holders could pool their efforts, and, use only

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[1] Parsons et al., Estimates of potential Yield for Shrimp (Pandalus ...) in the Eastern Hudson Strait and Ungava Bay. CAFSAC Res. Dec. 81/6.

a single vessel to catch their quotas, they would have an unfair advantage over those who decided not to pool. A situation of this type allows for less overhead and a more efficient harvesting operation.

During 1980, most of the shrimp continued to be processed on board and only eleven of the twelve licence holders participated in the shrimp fishery.

Although a number of licence holders had initiated action to train Canadian crews, most of the crew members on the chartered vessels were still foreign. Even on the Canadian-owned vessels, a number of the crew positions (officers especially) were still occupied by foreigners.

The Northern Shrimp Fishery in 1981

The TAC's established in the 1980 Northern Shrimp Management Plan were in effect again in 1981, with one exception, the Canadian allocation for Subareas 0 and 1 established in 1980 was restricted to Subarea 0 in 1981. As a result, Canadian vessels were not permitted to fish in the EEC Zone (Subarea 1). In 1981, Canada and the EEC could not come to agreement in negotiations for a 0 + 1 shrimp fishing plan. The Northwest Atlantic Fisheries Organization (NAFO) recommended a total TAC of 29,500 tonnes for the West Greenland shrimp fishery. Canada claimed for itself a 5,000 tonne TAC for the Canadian Zone (Subarea 0) which represented 17% of the total. Because of this unilateral action by Canada

the EEC decided to fish the whole 29,500 tonne TAC for itself plus an additional 500 tonnes in Subarea 1. Therefore in 1981, the effective TAC of shrimp from Subareas 0 and 1 amounted to 35,000 tonnes as opposed to a 29,500 tonne TAC recommended by NAFO.

In 1981, the Northern Shrimp Management Plan for the Labrador fishery had a distinctive approach. This was the first time in which a difference in the size of boat quotas was established between Canadianized (domestic) operations and foreign vessel charter arrangements. The Hopedale Channel TAC was allocated to provide a 364 tonne boat quota for each licence holder operating its own Canadian vessel. The foreign vessel charter operators, however, were allocated a 240 tonne boat quota but for no specific Channel, instead, it was for the entire Labrador Coast. The TAC's for Cartwright and Hawke Channels and Divisions 2G and 3K were open for competitive fishing. The vessel allocations could be adjusted upwards for Canadian vessels depending upon the number of licence holders who opted for foreign vessel charters.

The Subarea 0 TAC of 5,000 tonnes was allocated by (a) giving the Imaqpik Canadian vessel a boat quota of 815 tonnes; (b) 450 tonnes for each of the six licence holders operating its own Canadian vessel; and, (c) a 300 tonne boat quota for each of the five foreign vessel charters. Further to this, as a later development to the Management Plan, a 500 tonne allocation from the 5,000 tonne TAC was set aside as a vessel charter for surveillance and enforcement purposes in Subarea 0 for a period of up to 100 days. This arrangement slightly lowered the boat quotas of licence holders in this area. Two additional clauses under the 1981 Management Plan were (1) pooling of

licences was permitted under the 1.67 formula, and (2) each licence holder would be subjected to a phase-out schedule for a portion of its boat quota, should it fail to have caught its boat quota in Subarea 0 by September 15, 1981. The phase-out schedule was as follows:

A) September 15 - reduced by 100 tonnes

B) October 15 - reduced by another 100 tonnes

C) November 15 - reduced by another 100 tonnes

D) Priority for reallocations would be given to Canadian vessels and on December 1, the balance of the TAC for Subarea 0 remained open for competitive fishing.

Adjustments to the 1981 Northern Shrimp Management Plan were as follows:

1. September 18, 1981:

(a) A charter vessel was granted 240 tonnes in Subarea 0 as a substitution for 240 tonnes that was allocated to, and not harvested by, this vessel off Labrador. This substitution was authorized by the Department in the interest of catching the Subarea 0 TAC because it was expected that vesselallocations for Subarea 0 would not be caught in 1981; and further, because of failure in negotiations with the EEC Canada wanted to prove it had the Harvesting capability to catch the TAC. The starting date for harvesting the 240 tonnes was November 15.

(b) A reserve of 852 tonnes in Hopedale Channel created by-pooling charter agreements, was available for harvesting by 10 vessels on a free-for-all basis on November 15.

(c) The three charters by Labrador licencees were permitted to fish Subarea 0 until October 15. From October 15 on, there was free fishing for Canadian vessels in this area.

2. October 16, 1981:

Subarea 0 - Three Labrador charters given an additional 500 tonnes.

3. November 16, 1981:

Subarea 0 - Three Labrador charters given an additional 375 tonnes.

Fishing effort in 1981 was concentrated primarily in the Hopedale Channel and Subarea 0 with a lesser amount in Hawke Channel. There was 3,394 tonnes caught in the Hopedale Channel in 1981 which was 85% of the 4,000 tonne TAC, as well, 87% of the Subarea 0 TAC was caught. Approximately 132 tonnes (16%) were caught in the Hawke Channel (Table 2). Prior to 1981, effort off Labrador was concentrated in the Hopedale and Cartwright Channels. However, in 1981, fishing began earlier than in previous years and in April and May was restricted to Hawke Channel due t. severe ice conditions in the other areas.

Preliminary figures for catch rates indicated that the monthly/seasonal fluctuations evident from 1978-80 occurred again in 1981, but with less variation than in former years. The catch per unit-or-effort for the Hopedale Channel was about the same as it had been for 1980. The almost insignificant amount of effort in Cartwright Channel in 1981 has not allowed for adequate data collection, and, as a result, may not be a true reflection of the stock situation. The catch per hour of fishing for the Hawke Channel in 1981 was 207 kgs.[1]

The Preliminary catch per unit-of-effort for Division 0A (Canadian Zone) in 1981 was 391 kgs. compared to 368 kgs. in 1980. It appears that no decline in abundance occurred in Division 0A between 1980 and 19812.

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[1] Pers. comm. D.G. Parsons, St. John's, Newfoundland. February 25, 1982.

[2] D.G. Parsons et. al., Data on the Shrimp (Pandalus borealis) Fishery in Hopedale in 1981. NAFO SCR Doc. 81.

The catch per unit-of-effort for Subarea 1 indicates a stabilizing catch rate for 1981 at approximately 450 kgs. of shrimp per hour fished[1]. This compares with 496 kgs. for Subarea O and 1 combined in 1980.

In the Eastern Hudson Strait/Ungava Bay area there was no fishing plan established for 1981. There was only a paper TAC of 100 tonnes. The only catch recorded for this area in 1981 was an experimental catch of approximately 10 to 20 tonnes.

The Northern Shrimp fishery in 1981 retained some interesting aspects of former years. The majority of shrimp continued to be processed on board the vessels, most of the crew members on the chartered vessels were still foreign, and certain organizations, given further time extensions, still had not purchased vessels. Pooling arrangements were permitted in 1981 and all twelve Northern Shrimp licences were active. Nine of these licences were identified with domestic operators and three with charter operators. There was a total of sixteen different vessels used in the Northern Shrimp fishery in 1981. The reason for this is because an operator used, at different times of the year, more than one vessel to catch his quota. There was a total of six foreign vessels associated with the three charter licences, and, three foreign vessels utilized under one domestic licence.

In 1981, one domestic operator was granted permission to charter foreign vessels to harvest its Subarea O quota because their existing Canadian vessel did not have on-board processing capability. This operator was granted permission in 1979 under the same rationale (see page 11).

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[1] NAFO, Scientific Council Reports. 1981

## Current (1982) Status of the Northern Shrimp Fishery

### Resource

There appears to have been general stability in the Northern Shrimp fishery in the last two years. There was very little fishing and low catch rates recorded for the Cartwright Channel in 1980-81, and, as a result, data may not adequately reflect the true stock situation. Prior to 1981, there was no significant fishing in Hawke Channel; and, because of this lack of fishing effort there was no need to revise the TAC below 850 tonnes. Overall, there has been no definite 5-year projection or management plan devised for the Northern Shrimp fishery. Catches are affected by many variables; by month of fishing, the stock and/or area, daily migration patterns, intensity of fishing, etc., and this in turn affects data upon which TAC decisions are rode. The TAC's have increased in the Northern Shrimp fishery each year since its beginning with the overall TAC in 1981 being 44% greater than in 1978 (Corresponding catch has increased by 41%). Admittedly, this increase has been the result of the 0 + 1 TAC.

Prior to 1981, commercial harvest has occurred on only three of the seven stock areas identified. These areas were the Cartwright and Hopedale Channels and Subareas 0 and 1. In 1981 fishing in 0 + 1 was restricted to the Canadian Zone (Subarea 0) and there was no commercial fishing in Eastern Hudson Strait/Ungava Bay after the small amount of fishing effort that was experienced there in 1980.

Research scientists expect, baring unprecedented changes in stock abundance, that the total TAC for the Northern Shrimp fishery should not change substantially in the next few years. Smaller additional amounts may result from development of a commercial fishery in the Eastern Hudson Strait/Ungava

Bay area; and, depending upon negotiations with the EEC, access may be gained to Subarea 1. However, if negotiations with the EEC are successful, the combined Subareas 0 and 1 TAC's will not exceed the 5,000 TAC set for Subarea 0 in 1981.

Recent developments indicate that the Northern Shrimp Management Plan for 1982 will likely be similar to that of 1981. In this event the major thrusts of shrimp fishing effort in future years will be directed against the Hopedale Channel and Subarea 0. Therefore, even though the total TAC's available off Labrador and in Subarea 0 amount to 11,650 tonnes, the historical fishing patterns are such that certain areas (Divisions 2G and 3K and either Cartwright or Hawke Channels) are unlikely to be exploited. The combined TACis in these areas amount to approximately 1,800 tonnes which leaves a balance of 9,850 tonnes as the 'exploitable' TAC in Subarea 0, Hopedale Channel and either Hawke or Cartwright Channels.

Harvesting

In terms of harvesting activity the fleet caught 40% of the total TAC's in 1978, 67% in 1979, 74% in 1980 and 67% again in 1981. (Table 2 page 6 ). There was a decline in the total catch for Hopedale Channel in 1981 compared to 1980 because of the shifting of effort northwards to Subarea 0. The total catch of shrimp from Subareas 0 and 1 in 1979 made up 30% Of total fleet harvest in that year. This increased to 40% in 1980, and, the catch from Subarea 0 alone in 1981 made up 55% of total shrimp caught. Catch rates from 1977-81 have shown initial declines but some degree of stability has been demonstrated in the later years. Although annual catch per unit-of-effort indicates a general decrease in abundance (Table 4 following page), seasonally adjusted rates and biomass indices support the interpretation of relative stability.

TABLE 4

THE NORTHERN SHRIMP FISHERY- CATCH PER UNIT-OF-EFFORT IN THE LABRADOR CHANNELS AND SUBAREAS 0 AND 1 FOR THE PERIOD 1977 TO 1981

| Stock Area | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|
| Hawke Channel | - | - | - | - | 207 |
| Cartwright Channel | 550 | 435 | 260 | 239 | 204 |
| Hopedale Channel | 507 | 546 | 470 | 397 | 377 |
| 0+1* | 555 | 478 | 396 | 496 | 450 |

* This is the catch per unit-of-effort (kgs. per hour) for 6 trawlers of the Royal Greenland Trade Department for the months July-September for Subarea 1.

EEC Negotiations

Negotiations between Canada and the EEC resulted in a joint management plan for this area between the years 1978, when the Canadian allocation was 1,000 tonnes, to 1980, when it was 2,500 tonnes. These negotiations came into being when research scientists claimed that approximately 17% to 25% of the shrimp stock was located in Canadian waters, and secondly, because after 1977, there was an appreciable amount of foreign fishing in Subarea 0. Canadians then undertook to protect their interests through international negotiations, and, at the same time to prove to the EEC that Canada had the capability of harvesting a Significant Portion of the [illegible]

Failure of negotiations in 1981 resulted in Canadian vessels being denied access to Subarea 1 in that year. Recent developments to date indicate the same situation will exist in 1982. It is expected that Canada will probably take the same position as it did in 1981 whereby it will claim the advised NAFO TAC of 29,500 tonnes for 1982. The Canadian fishing industry will need access to Subarea 1 if they are to extend their shrimp

fishing season. They would fish the EEC Zone in the winter period when normally they would be tied up in port. At present, the Labrador fishery extends from around June to December, and if Subarea 0 is included, the season is extended to include the month of May[1]. Access by Canadians to Subarea 1 will depend upon future negotiations with the EEC. This area has a lucrative shrimp fishery and the EEC has many participants. Failure in negotiations this year surrounded the autonomy issue regarding Greenland's continued participation in the EEC. The EEC were concerned that to allow access before the referendum might have adverse political impacts. The EEC has many groups to please, with each having high capital investments in the fishery. The situation is a political one that is tied in with more than just shrimp. It also includes northern cod and trade-offs of other species world-wide.